

REMARKS

In the Office Action, the Examiner rejected claims 1-16, 18-24, 26-28, and 31-40. Applicants canceled claims 17, 25, 29, and 30 in a previous communication. By the present Response, Applicants amend claims 1-8, 10-12, 15, 18-21, 26, 31, 39, and 40 to further clarify the claimed subject matter. Upon entry of the amendments, claims 1-16, 18-24, 26-28, and 31-40 will remain pending in the present patent application. Applicants respectfully request reconsideration of the above-referenced application in view of the foregoing amendments and the following remarks.

As an initial matter, Applicants thank the Examiner for his Response to Arguments in the present Office Action. *See* Office Action mailed November 17, 2005, page 11. Particularly, the Examiner expressed his belief that the previously amended claims did not recite the distinguishing structure and features discussed in the interview between the Examiner and the undersigned representative on September 19, 2005. *See* Examiner Interview Summary mailed September 22, 2005, page 3 (with particular regard to lines 8-11, in which the Examiner stated that the structure and features of FIG. 2 could overcome the cited art). Applicants have carefully considered the Examiner's statements, the present claims, and the prior art. As submitted previously by Applicants and noted by the Examiner in the Interview Summary, the present application, among other things, discloses the maintenance of transaction ordering at multiple levels, such as at a bridge-bridge level in addition to a bus-bridge level. The present application also provides for pure transaction ordering at a bridge-bridge level (such as Level 2 in FIG. 2) more than

one level removed from a bus level (such as Level 0 in FIG. 2) through the use of transaction order queues located at the bridge-bridge level to allow a one-to-one correspondence between a grandchild-link from which a transaction was communicated and a transaction order queue in the bridge-bridge level.

While Applicants do not necessarily agree with the rejections or statements presented in the instant Office Action, in the interest of advancing prosecution, Applicants have amended the independent claims to further clarify the claimed subject matter and more clearly set forth aspects of the features discussed during the previous interview and noted above. More specifically, as may be seen in the amended claims, independent claims 1, 12, and 21 have been amended to further clarify the enablement of transaction ordering through multiple levels, such as through a child-bridge level and a parent-bridge level, as discussed in the above-referenced interview. Independent claims 26, 31, and 39 have been amended to further clarify the one-to-one relationship and pure transaction ordering provided in the present application and also discussed in the same interview. The Hausauer reference fails to teach such features. Consequently, Applicants believe the presently amended claims are clearly allowable over the Hausauer reference. If the Examiner believes that there are any remaining issues with respect to the Hausauer reference, Applicants kindly request that the Examiner contact the undersigned representative at the telephone number provided below to discuss any remaining concerns.

Claim Objections

In the Office Action, the Examiner objected to claim 15 for failing to limit the subject matter of a previous claim. Although Applicants do not necessarily agree with the objection, Applicants amended the claim as set forth above. In view of this amendment, Applicants believe the objection is moot. Accordingly, Applicants respectfully request withdrawal of the Examiner's objection to the claim.

Rejections Under 35 U.S.C. §§ 102 and 103

In the Office Action, the Examiner rejected claims 1-16, 18-24, 26-28, 39, and 40 under 35 U.S.C. § 102(b) as anticipated by Hausauer (U.S. Patent No. 6,138,192). The Examiner also rejected claims 31-38 under 35 U.S.C. § 103(a) as unpatentable over the Hausauer reference in view of Official Notice taken by the Examiner. Applicants respectfully traverse these rejections.

Legal Precedent

Anticipation under Section 102 can be found only if a single reference shows exactly what is claimed. *Titanium Metals Corp. v. Banner*, 227 U.S.P.Q. 773 (Fed. Cir. 1985). For a prior art reference to anticipate under Section 102, every element of the claimed invention must be identically shown in a single reference. *In re Bond*, 15 U.S.P.Q.2d 1566 (Fed. Cir. 1990). Moreover, the prior art reference also must show the identical invention “in as complete detail as contained in the ... claim” to support a

prima facie case of anticipation. *Richardson v. Suzuki Motor Co.*, 9 U.S.P.Q. 2d 1913, 1920 (Fed. Cir. 1989) (emphasis added). Accordingly, Applicants need only point to a single element not found in the cited reference to demonstrate that the cited reference fails to anticipate the claimed subject matter.

Furthermore, the burden of establishing a *prima facie* case of obviousness falls on the Examiner. *Ex parte Wolters and Kuypers*, 214 U.S.P.Q. 735 (PTO Bd. App. 1979). Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention absent some teaching or suggestion supporting the combination. *ACS Hospital Systems, Inc. v. Montefiore Hospital*, 732 F.2d 1572, 1577, 221 U.S.P.Q. 929, 933 (Fed. Cir. 1984). Accordingly, to establish a *prima facie* case, the Examiner must not only show that the combination includes *all* of the claimed elements, but also a convincing line of reason as to why one of ordinary skill in the art would have found the claimed invention to have been obvious in light of the teachings of the references. *Ex parte Clapp*, 227 U.S.P.Q. 972 (B.P.A.I. 1985).

Deficiencies of the Rejections

As noted above, Applicants have amended the claims of the present application to more clearly set forth the recited subject matter. Particularly, Applicants have amended various claims to clarify certain elements and the relationships between these elements that enable transaction ordering to be maintained across multiple levels of a computer system or that facilitate pure transaction ordering, as discussed during the interview of

September 19, 2005. In view of these amendments, Applicants respectfully assert that the rejections provided in the Office Action mailed November 17, 2005, are moot and that the present claims are clearly allowable over the prior art of record.

Independent Claims 1, 12, and 21

As amended, independent claim 1 recites a parent-bridge “configured to route the transaction of the subset to the associated parent-level transaction order queue based on the transaction identifier associated with the transaction, such that the plurality of parent-level transaction order queues and the plurality of transaction identifiers *facilitate maintenance of transaction ordering from the plurality of child-bridges to and within the parent-bridge*” (emphasis added). Amended independent claim 12 recites a child-bridge that is configured to order transactions at a second level of a computer hierarchy and transmit such transactions and transaction identifiers to a third level of the hierarchy, “wherein the plurality of transaction identifiers *enable transaction ordering to be maintained from the second level through the third level*” (emphasis added). Further, independent claim 21 has been amended to recite a method of routing transactions that includes “routing the transaction to the transaction order queue associated with the transaction identifier, wherein routing *enables transaction ordering performed at the child-bridge level to be maintained at the parent-bridge level*” (emphasis added).

Applicants respectfully note that the Hausauer reference fails to disclose these elements. The Hausauer reference generally discloses a bridge device 50 that follows relaxed transaction ordering rules. Col. 4, lines 18-21; FIG. 2. To achieve such relaxed ordering, the bridge 50 includes two identical sets of buffers 64 and 66, which facilitate ordering of transactions received from devices 60 and 62 independent from one another, at the level of bridge 50. Col. 4, lines 28-34. Upon review of the reference, it is evident that Hausauer teaches, at best, relaxed ordering of transactions in a *single* level (i.e., that of bridge 50) of a computing system. Because the reference is only concerned with ordering of transactions in a single level, it would be counter-intuitive to suggest that the reference somehow suggests maintaining ordering through multiple bridges at different architectural levels of the system, as variously recited by independent claims 1, 12, and 21. Consequently, Applicants respectfully submit that the Hausauer reference does not disclose each and every element of the claims 1, 12, and 21 and, thus, fails to anticipate these claims.

Independent Claims 26, 31, and 39

Turning now to the remaining independent claims, independent claim 26 recites a one-to-one correspondence between a grandchild-link and a transaction order queue of a parent-bridge that “enables *pure transaction ordering* in the parent-bridge” (emphasis added). Further, independent claim 31 recites a multi-level computer system in which the parent-bridge is located at a first level and receives transactions originating from a third level “wherein each of the plurality of grandchild-links is associated with only one of the

plurality of transaction order queues *to provide a one-to-one correspondence* between each of the plurality of grandchild-links and a respective transaction order queue *to enable pure transaction ordering* at the first level of transactions originating from the third level” (emphasis added). Finally, independent claim 39 recites a multi-level computer system in which “each of the buses of the plurality of buses being associated with only one of the transaction order queues *such that there is a one-to-one correspondence between the buses of the first level and the transaction order queues of the third level*, and such that an association between each of the plurality of buses and a transaction received therefrom *is maintained at both the second level and the third level* of the computer system *to facilitate pure transaction ordering within the third level*” (emphasis added).

As noted above, the Hausauer reference neither teaches nor suggests transaction ordering in more than one level of a computer system. Further, as the Examiner will appreciate, while present independent claims 26, 31, and 39 each recite pure transaction ordering at a parent-bridge level at least two levels removed from the level at which the transactions originate, the Hausauer reference is completely silent with respect to providing pure transaction ordering in a level separated from the transaction origination level by one or more intermediate levels. As such, the Hausauer reference cannot be reasonably characterized as disclosing such elements. Accordingly, the Hausauer reference fails to disclose or suggest each element of independent claims 26, 31, and 39. In addition, the Official Notice taken by the Examiner with respect to the recitation of

multiple processors in claim 31 does nothing to obviate the above-noted deficiencies of the Hausauer reference. Consequently, claims 26 and 39 cannot be anticipated by the Hausauer reference, and the combination of the Hausauer reference with Official Notice cannot establish a *prima facie* case of obviousness with respect to claim 31.

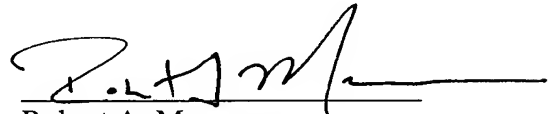
Because none of the art of record, taken alone or in combination, discloses or suggests all of the features as recited in any of the independent claims, the cited references can neither anticipate the present claims, nor render these claims obvious. For these reasons, Applicants respectfully request withdrawal of the rejections under 35 U.S.C. §§ 102 and 103 and allowance of claims 1-16, 18-24, 26-28, and 31-40.

Conclusion

In view of the remarks and amendments set forth above, Applicants respectfully request allowance of the pending claims. If the Examiner believes that a telephonic interview will help speed this application toward issuance, the Examiner is invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,

Date: February 14, 2006


Robert A. Manware
Reg. No. 48,758
(281) 970-4545

CORRESPONDENCE ADDRESS
HEWLETT-PACKARD COMPANY
Intellectual Property Administration
P.O. Box 272400
Fort Collins, Colorado 80527-2400